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AUTHOR Harden, Thomas K.
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ABSTRACT

Because of the need for increased numbers of qualified industrial arts teachers, this study was designed to identify factors that influence the choice of industrial education as a major for adult students in certification programs throughout the United States. A representative sample of adult students in industrial education departments of colleges throughout the country was identified and questionnaires were mailed to them with 242 usable questionnaires returned. The results of the study indicate that most adult students are preparing for their second careers. Half of them decided to study industrial arts while working and not attending classes. Most adult students in industrial arts are upperclass or graduate students, and most have served at least one year in active military service. About two-thirds are self-supporting, and most work while going to school. In general, adult students did not perceive recruitment practices used by colleges to be effective. However, practices entailing personal contact with industrial arts professionals were considered effective. Personal interest, personal preference, and personal improvement were factors that were considered to be important to adult students' selection of industrial arts as a major. Factors related to making contributions to others were also rated highly. The study concluded that recruitment efforts aimed at adults must be carefully planned and based on the identified characteristics of potential students. (Author/KC)

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Adult Students in Industrial Arts Teacher Education

Thomas K. Harden, Ed.D.
Assistant Professor
Southwest Texas State University
San Marcos, Texas

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Factors Affecting Adult Students' Choice of Industrial Arts as a Certification Field

The shortage of industrial arts teachers coupled with the general decline in university enrollment since 1970 emphasizes the need for effective identification of potential teacher candidates. It is more important than ever that universities pursue every appropriate opportunity to attract candidates, not only the traditional recruits like high school and junior college students, but also non-traditional-aged students. Several studies dealing with the recruitment of high school and junior college students have been reported (Edmunds, 1980; Gore, 1981; Smith, 1979; Foley, 1967). However, concerning older students, studies have not revealed what jobs, activities, locations, and other experiences have preceeded and influenced their choices to pursue teacher certification in industrial arts.

University enrollment on the whole has declined recently; however, the number of non-traditional-aged students is increasing. If industrial arts is to maintain its present status in the schools across the United States, serious efforts to attract non-traditional-aged students should be conducted. In order to develop strategies for attracting

these potential teacher candidates, it is first necessary to identify adult students presently enrolled in four-year university programs of industrial education and to define their reasons for choosing industrial education as a major field of study.

For industrial arts to maintain its present status in the United States, efforts must be made to attract additional clientele to teacher training programs. To do this, recruitment strategies for specific target groups must be devised.

Purpose of the Study

The purpose of this study was to identify factors which influenced the choice of industrial arts as a certification field in programs throughout the United States. Analysis for clusters and dominant factors was conducted. The study was concerned only with students whose ages were twenty-five and over. Recent studies have dealt with recruitment of traditional-aged students.

This study provides information about adult students in industrial arts nationally. This information will be useful to educators when identifying target populations for recruitment.

Method

Descriptive research was the methodology used in this study to describe and interpret "what is". This is the primary concern of descriptive studies(Borg and Gall, 1979). This approach was selected as appropriate for this study because adult students' points of view, attitudes, and effects they have felt were to be collected and assessed.

Research is roughly divided into two kinds, exploratory research and verification research. In exploratory research, new territory is probed to discover what is there. Verification research attempts to get a more precise mapping of an area which is already partially known (Armstrong, 1974). This study dealt with factors which influenced adult students' selection of industrial arts as a certification field, a topic formerly unresearched.

Data Collection

The study was an exploratory descriptive-survey, employing a questionnaire to obtain data. A preliminary survey was conducted to determine the adult proportion of the total population of industrial education majors. This survey was conducted of 20 industrial education departments across the nation selected by random sample. The adult proportion of the total population was estimated to be 18 percent. This figure was then used to calculate the sample size required for the study.

Six questionnaires were sent to the industrial education department heads in each of the 201 universities in the United States which offer industrial arts certification. Each department head was asked to distribute the questionnaires to students in his respective department who were at least 25 years old and working toward certification in industrial arts. The students, then, were asked to complete the questionnaire and return it to the researcher.

Research Questions

Since prior data were not available, there was no reason to expect that any particular factors being assessed would surface as dominant. Therefore, for this study a formal hypothesis was not in order (Armstrong, 1974). Hypotheses are valid where possible outcomes have already been identified and extraneous variables controlled. In this case a hypothesis would have imposed a serious limiting factor on a study whose intent was to explore and discover characteristics and influences on a population never before studied.

The following research questions served as sufficient guides for the research:

1. What are the background and demographic characteristics of adults in industrial arts certification programs?
2. Are college/university recruitment techniques effective with adult students in industrial arts certification programs?
3. What additional factors influence adult students' choices of industrial arts as a certification field?

Subjects

The population studied was students in industrial arts certification programs, nationally, who were at least twenty-five years old. The study was limited to students who were enrolled in institutions identified in the Industrial Teacher

Education Directory (Dennis, 1980) which offer teacher certification programs in industrial education and/or industrial arts education. This directory identified 201 such institutions. The department heads in each of these institutions were asked to identify six students in their respective departments who met the criteria, and provide each with a questionnaire.

The number of pre-service industrial arts teachers is unknown, and accurate estimates were not available. This complication made it necessary to use an estimated sample size to specify the accuracy and alpha level for the study of pre-service industrial arts teachers.

Given that the population (pre-service industrial arts teachers) is divided into two classes (less than 25 years old, and 25 years and older), it is possible to use proportions to establish a sample size.

Cochran (1977) provides a method of using proportions to approximate sample size:

$$N_o = \frac{t^2pq}{d^2}$$

Where N_o is the sample approximation, q is that proportion of the population under study, q is the remainder of the population, t is the abscissa of the normal curve of the alpha area, and d is the specified degree of precision.

Through a random sample of 20 industrial arts teacher education institutions, it was estimated that 18 percent of the pre-service industrial arts teachers were adult students.

With an alpha of 0.05 and the precision of five percent, the following sample size was established:

$$N_o = \frac{t^2pq}{d^2} =$$

$$\frac{1.96 \times 1.96 \times .18 \times .82}{.0025} = 227$$

If the N of the population were known, it would have been appropriate to apply the finite population correction (Cochran, 1977) to estimate N_o. With the finite correction being:

$$N = \frac{N_o}{1 + \frac{(N_o - 1)}{N}}$$

the final N will always be less than N_o. Consequently, N_o will be greater than N. Using N_o will provide a more conservative (lower alpha) sample size.

Therefore, it was determined that the sample size needed to be at least 227. Two-hundred forty-two received was more than sufficient.

Questionnaire

The questionnaire was developed and utilized solely for the purpose of securing data concerning factors which influenced adult students' choices of industrial education as a major.

Section A of the questionnaire obtained information which provided insight into the background experiences of adult students. Demographic information was also requested concerning age, financial status, class level, and activity in civic groups.

Section B asked the respondents to rate the effectiveness of recruiting practices used by colleges/universities intended to attract industrial arts majors. Adult students were asked to rate the 14 recruitment techniques identified by Edmunds (1980), in terms of their own perceptions of the technique's effectiveness. The rating scale was from "0", Totally ineffective, to "4", Very effective. The respondents were also asked to list and rate other recruitment practices which they perceived to be effective.

Section C was concerned with influential factors, other than direct recruitment practices, which may have influenced adult students to pursue industrial arts as a major. The respondents were asked to rate 24 factors in terms of the influence each one had on the students' decision to major in industrial arts. The rating scale was from "0", No influence, to "4", Very influential. The respondents were also asked to identify and rate other factors which influenced their choice of industrial arts as a major.

The data collected were transposed to data cards for use by the computer. Computational statistics were performed using SPSS (Statistical Package for the Social Studies), Version 9 (Hull and Nie, 1981) programming.

Results

Forty-nine of the 50 states in the United States have at least one university which offers an industrial arts education program. Data was collected from 41 of those 49

states. Chairpersons from 90 different institutions responded to the request for their assistance with the study. One institution received the questionnaire between terms, and thus was unable to assist. Three chairpersons responded that they had no students who met the criteria for the study. Adult students from 86 institutions returned the questionnaire. Two-hundred forty-two usable questionnaires were returned. This was determined to be an adequate sample size.

Background and Demographic Characteristics

The results of this study indicate that adult students in industrial arts certification programs are diverse in background and represent a large segment (18 percent) of the total population.

Unlike the traditional-aged college students, 75 percent of the adult students who are involved with industrial arts are preparing for a career change. Adult students' ages are distributed over a broad range; 36 percent are over 35 years old. Thus, adult students, because they have experience in at least one career occupation, often bring with them to industrial arts real-life experiences and job related experiences which can be valuable assets to a teacher.

Most adult students had at least a one year lapse in time between high school graduation and initial enrollment into college. In addition, only six percent of the adult students decided to major in industrial arts while they were in high school. Fifty percent decided to major in industrial

arts while working, but not attending college. Therefore, if a college recruiting program is directed toward secondary or junior college students, half of the potential candidates may be missed. Thirty-three percent of the adult students decided on industrial arts while in college. This, in part, explains why 98 percent of the adult students in industrial education are upperclassmen (junior, senior) or graduate students.

Thirty-five percent of the adult students have been in training programs in industry or an industry school. Thirty-four percent have completed trade or technical programs and are journeymen and/or technicians.

Over one-third of the adult students (36 percent) indicated that industrial education was always their college major. The remaining 64 percent claimed prior majors. However, there was no dominant prior major evident.

Seventy-two percent of adult students support themselves. Over two-thirds work either full or parttime. Fifty-six percent are reimbursed for all or some of their educational expenses.

Two-hundred twelve of 241 adult students indicated that they were full-time students. This is a high percentage compared to the 1978 national average which was 35.5 percent (Grant and Eiden, 1980).

Only three percent of the adult students are currently in military service. However, 55 percent have served at least one year in active military service. Sixteen percent served at least 20 years active military service.

Even though 19 percent of the adults indicated that they were members of a fraternal order or lodge, a large majority (65 percent) claimed no affiliation with any civic group.

Fourteen percent of the adults in industrial arts education programs do not intend to teach. Twenty percent are undecided. However, 66 percent do intend to teach for a variety of different reasons as seen in Table 1.

Insert Table 1 about here.

Effectiveness of Recruitment Practices

Recruitment practices utilized by college industrial arts education departments can, at best, be described as moderately effective. Fourteeen commonly used recruitment techniques (Edmunds, 1980) were rated by adult students on a scale of 0 to 4. The combined mean ($\bar{X}_T$) for the 14 was 2.011 (moderately effective as specified on the questionnaire).

The two recruitment practices receiving the highest rating both entailed personal contact with an industrial arts professional. The technique rated as the most effective was personal contact with an industrial arts teacher. Rated second highest was personal contact with college faculty members representing industrial education. Table 2 illustrates the adults' rating of all 14 recruitment practices.

Insert Table 2 about here.

Table 1

Adult Students' Reasons for

Wanting to Teach Industrial Arts

Intend to Teach Because	Number of Respondents
Previous teaching, or related activity was positive	36
I enjoy working with students, children	29
I think I would like it, always wanted to	25
I feel a need to help students, to pass on knowledge and skills	12
I can make a contribution to society or to education	10
Personal enjoyment, satisfaction, fulfillment	9
I posess required skills and abilities	6
Summers off	6
I like the working conditions or hours	5
Job security, job availability	5
I'm restricted to non-lifting work	3
Teachers were influential in my life	2
Many equally important reasons, many factors combined	2
That's the way it happened	1
Compatible with spouse's avocation	1

Table 1, continued

Adult Students' Reasons for

Wanting to Teach Industrial Arts

Intend to Teach Because	Number of Respondents
Less demanding than prior employment	1
I was counseled to teach	1
To better my career	1
	Total 155

Table 2

Adult Students' Rating of College Recruitment Practices

Rank	Recruitment Practice	Mean	Mode	Std. Dev.	N	Σx
1.	Personal contact with an industrial arts teacher	3.076	4	1.136	237	729.0
2.	Personal contact with college faculty member representing industrial education	2.881	3	1.208	236	679.9
3.	Information packets provided upon request	2.416	3	1.269	231	558.0
4.	Scholarships for industrial education programs	2.232	3	1.521	224	500.0
5.	Career day, open house, or conference activities on college campus	2.061	3	1.378	230	474.0
6.	Read newspaper or magazine articles(s) about industrial arts teaching or teaching in general	2.031	2	1.207	228	463.1
7.	College industrial education faculty presentation to an organization of which you are a member	1.872	2	1.250	227	424.9
8.	Filmed presentation of departmental offerings	1.813	3	1.312	224	406.1

Table 2, continued

Rank	Recruitment Practice	Mean	Mode	Std. Dev.	N	ΣX
9.	Visit to your community college by industrial education faculty	1.768	2	1.281	220	389.0
10.	Industrial arts education display at shopping mall or other public place	1.754	2	1.318	224	392.9
11.	Letters to you from college industrial education department	1.720	2	1.257	232	399.0
12.	Distribution of booklets describing industrial arts education	1.700	2	1.100	233	396.0
13.	Contact with college-paid recruiters	1.516	0	1.262	223	338.0
14.	TV or radio advertisements concerning teaching	1.478	2	1.231	224	331.0

$\Sigma N = 3139$ $\Sigma X = 6421$

$$\bar{X}_T = \frac{\Sigma X}{\Sigma N} = \frac{6421}{3193} = 2.011$$

The adult students also identified several other techniques which could be used in a recruitment program. Each one, however, was cited by fewer than five respondents.

Other Factors Influencing Adult Students' Choices of Industrial Education

In this study, adult students in industrial arts certification programs rated, on a scale of 0 to 4, 24 factors which may have influenced their decision to major in industrial education. As indicated in Table 3, the top three factors related to the students' personal interest, preference, and personal improvement. Factors relating to making contributions to others were also rated high.

Insert Table 3 about here.

Adult students also identified several other factors (other than the list of 24) which influenced their choice of industrial education as a major. Each additional factor was identified by fewer than five respondents.

Conclusions

Across the nation there presently exists a sizeable number of students who are 25 years old or older in industrial arts certification programs.

Review of current literature and the results of this study indicate that, generally, college and university departments of industrial arts education employ no apparent systematic, on-going program for the recruitment of teacher

TABLE 3

Adult Students' Rating of Factors Which May Have Influenced Their Choices of Industrial Education

Rank	Factor	Mean	Mode	Std. Dev.	N	ΣX
1.	Personal interests or hobbies	3.517	4	.739	238	837.0
2.	Enjoyment derived from working with your hands	3.403	4	.722	238	810.0
3.	Personal improvement	3.135	4	.965	237	743.0
4.	Desire to work with young people	3.021	4	1.091	237	716.0
5-6.	Opportunity to make a useful contribution to others through teaching	3.013	4	1.081	238	717.1
5-6	Acquisition of technical skills through industrial education	3.013	4	1.049	238	717.0
7.	Interest in science and technology	2.954	3	1.040	238	703.1
8.	Anticipated satisfaction to be found in teaching	2.899	3	1.074	238	689.9
9.	Promise of a challenging and rewarding occupation	2.882	3	1.069	238	686.0
10.	Relevancy of industrial arts courses to real world concerns	2.813	3	1.141	241	678.0

TABLE 3, continued

Rank	Factor	Mean	Mode	Std. Dev.	N	ΣX
11.	Attainment of general knowledge	2.725	3	1.105	240	654.0
12.	Need or desire to become technically competent	2.515	4	1.357	241	606.1
13.	Promise of a satisfactory style of living	2.224	2	1.240	237	527.0
14.	Job security in teaching industrial arts	2.118	2	1.284	238	504.0
15.	Working conditions of a teacher	2.055	2	1.170	238	489.1
16.	Industrial education courses, taken by you, promoted your interest in the department	1.833	0	1.541	240	440.0
17.	Desire to obtain a college degree independent of the teaching certificate	1.808	0	1.567	240	434.0
18.	Anticipated job advancement opportunities	1.716	2	1.337	236	405.0
19.	Contact with an industrial arts teacher who described his job to you	1.655	0	1.534	238	393.9
20.	You found satisfaction as a military teacher or industrial teacher/instructor	1.585	0	1.635	234	370.9

TABLE 3, continued

Rank	Factor	Mean	Mode	Std. Dev.	N	ΣX
21.	Perceived social status attached to being a teacher	1.342	2	1.052	237	318.1
22.	Attraction of modern facilities in the industrial education department	1.335	0	1.352	239	319.0
23.	Student in industrial education described college program to you	0.987	0	1.352	239	234.9
24.	Conversations with high school guidance	0.289	0	0.758	235	058.0
					ΣN=5712	ΣX=13061

$$\bar{X}_T = \frac{\Sigma X}{\Sigma N} = \frac{13061}{5712} = 2.287$$

trainees. This study indicates that most recruitment which does take place is not effective with adults.

An effective recruitment program for attracting adult students must be broad-based, systematic, and continuous. Such a program, while being broad enough to reach the various backgrounds of adults, must not take a haphazard approach. It must be carefully planned, and implemented, and be followed by an evaluation of its success.

Although this study identifies many general characteristics of adult students in industrial education, individual departments are urged to identify characteristics of the adult students in their own programs. Data thus collected should prove valuable to the development of departmental recruitment efforts.

References

Armstrong, R. L. Hypotheses: Why? When? How?. Phi Delta Kappan, November, 1974, 56, 213-214.

Borg, W., and Gall, M. Educational Research, third edition. New York: College Entrance Examination Board, 1980.

Cochran, W. G. Sampling Techniques, third edition. New York: John Wiley and Sons, 1977.

Dennis, E. A., (comp.). Industrial Teacher Education Directory. Washington, D.C.: National Association of Industrial and Technical Teacher Educators, 1980.

Edmunds, N.A. Effective recruiting - A tool to replenish, sustain, and improve the profession. The Journal of Epsilon Pi Tau, Spring, 1980, VI:1, 17-22.

Foley, J.D. Recruitment and selection of potential industrial arts teachers, parts I and II. New York University, 1967.

Gore, D.K. Industrial arts teachers: The shortage continues. Man/Society/Technology. February, 1981, 26-27.

Grant, W.V. & Eiden, L.J. Digest of Education Statistics 1980. Washington: U. S. Government Printing Office, 1980.

Hull, C. & Nie, N. New Procedures and Facilities for SPSS, releases 7-9. New York: McGraw-Hill, 1981.

Smith, D. F. Serious shortage exists in industrial arts. Man/Society/Technology. 1979, 38:6, 12-15.